SECTION 2.11 EMISSION CONTROL
(WAC 463-42-225)

2.11.1 INTRODUCTION

This section identifies emissions of criteria pollutants governed by national and Washington ambient air quality standards (NAAQS and WAAQS). Please see Section 3.2 AIR for a discussion of air quality and meteorological conditions for the project, odor, climate, and dust, and Section 6.1 for the background information for the Notice of Construction and Application for Approval (NOC) for the Kittitas Terminal.

Volatile Organic Compounds (VOCs) are not considered a criteria pollutant but are considered a precursor to ground-level ozone formation. As a result, VOC emissions are regulated by federal and state New Source Performance Standards (NSPS). Two potential sources of air emissions are (1) air emissions from the proposed Kittitas Terminal; and (2) fugitive emissions from the pump stations along the pipeline route. The main pollutants of concern during the operation of the pipeline facilities are the emissions of total Volatile Organic Compounds (VOCs) and toxic air pollutants. No other pollutants are expected to be emitted from the facilities, with the exception of combustion pollutant emissions during the emergency operation and periodic testing of the diesel-fueled fire pump at the Kittitas Terminal.

Emissions for this project will be controlled using Best Available Control Technologies (BACT) and will comply with federal and state standards. Emissions from the proposed facilities will not contribute to an ambient air quality standard exceedance.

2.11.2 CRITERIA POLLUTANTS

A bulk terminal facility located in Kittitas is proposed for this project. The bulk facility will include ten aboveground fuel storage tanks to be built over a 5- to 10-year period. For this application, emissions estimates have been based on the presence of ten tanks at the facility. A list of tanks, capacities, and constituents is provided in Section 6.1 AIR QUALITY PERMIT REQUIREMENTS. Each tank design consists of a fixed external cone roof with an internal floating roof (also referred to as a deck). A main loading rack area (transfer rack) will allow for the loading of two tanker trucks simultaneously. Each loading rack contains five product-loading arms. The total throughput of the loading rack is approximately 1,020,000 gallons of fuel per day (based on a maximum of 102 10,000 gallon tank trucks per day) or 373,300,000 gallons per year. A vapor recovery system with a designed capture efficiency equivalent to 99.9 percent is proposed for the loading rack operations. One auxiliary loading rack is also proposed. This loading rack will be used only for unloading ethanol from tanker trucks into the ethanol storage tank, loading tanker trucks with jet fuel, and loading tanker trucks with the contents of the transmix tank (a tank used for storage of fuels which have mixed in the pipeline). One main pump station will also be located at the terminal facility, and estimated fugitive emissions for the pump station have been included in the fugitive emissions calculations for the terminal facility. This facility is classified under the Standard Industrial Classification (SIC) code of 5171.

Potential emissions of criteria pollutants at the Kittitas Terminal will result from daily operations at the facility. Potential VOC emissions will be approximately 17 tons per year. Potential VOC emissions will not exceed Prevention of Significant Deterioration (PSD) major emission thresholds (100 tons per year of regulated pollutant) therefore, federal PSD and Title V major source operating permits are not required. VOC emissions are also regulated by state and federal NSPS in the form of emission control requirements. Due to the quantity of fuels stored at the Kittitas Terminal, and the chemical composition of these fuels, the storage tanks must comply with applicable New Source Performance Standards (NSPS), and Ecology's Emissions Standards and Controls for Sources Emitting Gasoline Vapors (WAC 173-491).

EPA regulates storage tank facilities under 40 CFR Part 60, Subpart Kb, entitled "Standards of Performance for Volatile Organic Liquid Storage Vessels Constructed After July 23, 1984." This standard has been adopted by Ecology in WAC 173-400-115. This regulation is applicable to storage tanks with capacities equal to or greater than 40 cubic meters, such as those proposed for this project. However, storage tanks with capacity greater than 151 cubic meters and liquid contents held at a maximum total vapor pressure less than 3.5 kilopascals (Kpa) are exempt from most of the requirements of this regulation. Therefore, the diesel and jet fuel tanks must comply only with recordkeeping requirements of the NSPS. The tanks to which all sections of the regulation will apply are the gasoline and ethanol tanks, due to content but not to size. The proposed design of the storage tanks include a fixed cone roof with internal floating roof, primary and secondary vapor-mounted rim seals, and gasketed atmospheric vents meeting the requirements of the NSPS. Inspection and maintenance of the tanks including the roof, seals, and vents are

an integral part of the NSPS and shall be implemented at the facility. Routine inspection and maintenance are included in the Operations and Maintenance Plans for the facility. Meeting the requirements stated in the NSPS for storage tanks also demonstrates compliance with the fixed roof requirements stated in WAC 173-491.

The delivery of gasoline through loading racks to tank trucks is regulated under 40 CFR Part 60, Subpart XX. This standard is applicable to all bulk gas terminals whose daily throughput is greater than 75,700 liters (20,000 gallons) per day. Emission controls are also required for this NSPS. The truck rack will have dry-break couplings on the loading arms, eliminating product spills and vapor loss when decoupling the arms from the trucks. The trucks will also be submerged-filled using bottom loading, which also reduces vapor loss. All safety and vapor recovery equipment will be attached to the truck before loading of liquids commences. A vapor recovery system will be employed during loading operations as well. The vapor recovery unit will consist of carbon adsorption filters and associated equipment. At least 99.9 percent of the vapor emissions will be recovered and filtered through the unit. Product recovery from the unit will be recycled into the storage tanks. Trucks will also be leak-tested and vapor-tight, considerably reducing emissions which may be lost during loading and transit. Records will be maintained on site of all tanks and leak testing.

WAC 173-491 states that gasoline loading facilities use a vapor recovery system equivalent to vapor emissions less than 35 milligrams per liter of liquid loaded. The carbon adsorption unit will allow no greater than 10 milligrams per liter of liquid loaded, meeting WACs requirements. Also, WAC requires vapor testing of tank trucks and spill control methods to be utilized at the transfer rack. All of these requirements will be met using the methods stated above.

Five pump stations are proposed along the pipeline route and a delivery facility at Pasco. The pump stations will be located in Thrasher, North Bend, Stampede, Beverly-Burke, and Othello. Each pump station will utilize electric pumps and motors, of which leaks from valves, flanges and pump seals are expected to be the main sources of fugitive emissions. A leak detection program will be implemented as a means to control fugitive emissions from these sources.

In addition to meeting emission control standards, Ecology requires that all new air polluting emission sources apply BACT, as part of the New Source Review program (WAC 173-400). A top-down and incremental BACT determination was performed to determine the level of emission control required for the fuel storage tanks and the vapor recovery system at the Kittitas Terminal. The complete BACT analysis is included in Section 6.1, Notice of Construction and Application for Approval, and is summarized below.

WAC 173-400-030 applies to any increase in emissions that the new source or modification would cause. Accordingly, this BACT analysis is included to demonstrate that the proposed facility will utilize emission controls that are consistent with Washington=s BACT requirements

Note that the State=s air quality regulations do not specifically require that a BACT determination be presented according to the Atop-down@ method that has been a component of USEPA policy for PSD projects since 1987. Nevertheless, the Department of Ecology has also adopted the top-down approach as a policy matter, and the present analysis has been conducted accordingly. This explains why federal guidance documents intended for PSD permitting applications are cited throughout the following discussion, even though the federal PSD program itself does not apply to the Kittitas project.

The top-down process for determining BACT provides that all available control technologies for a particular emission source be ranked in descending order of control effectiveness, with the most stringent or Atop@ alternative considered first and discarded only if it can be demonstrated that technical considerations, or energy, environmental or economic impacts justify a finding that this control option is infeasible. If the most stringent technology is eliminated based on one or more of these criteria, then the next most stringent alternative is considered, and so on, until a feasible technology is identified. The five basic steps for implementing the top-down process for a particular emission unit are listed below

(1) Identify all available control technologies.

(2) Eliminate technically infeasible alternatives.

(3) Rank remaining control technologies by control effectiveness.

(4) Evaluate remaining controls in terms of the energy, environmental and economic impacts, both beneficial and adverse.

(5) Select BACT as the most effective control option not eliminated due to the considerations in the previous steps.

The only criteria pollutant that will be emitted by the Kittitas terminal in appreciable quantities is volatile organic compounds (VOCs). This pollutant is of regulatory concern primarily because of its role in the atmospheric formation of ozone. There are three categories of VOC sources at the proposed facility: storage tanks, truck rack and general fugitive emissions from valves, flanges, pump seals, etc. The following subsections provide the BACT demonstrations for each category of sources. The only source of other pollutants will be an emergency firewater pump that will operate on diesel fuel. However, this piece of equipment will be tested only about one-half hour per week to ensure its operability, and the associated emissions of combustion pollutants (NO_x, SO_2, CO and PM_{10}) are not subject to BACT requirements.

The control technology option proposed as BACT for VOC emissions from the storage tanks at Kittitas is the internal floating roof with double seals (vapor mounted). This option has a VOC emission reduction rating that is slightly less than that of the same tank configuration with liquid mounted seals, but does not entail creation and disposal of a hazardous waste, i.e., the saturated seal material, which is the primary

reason for OPL=s preference of the vapor-mounted seal option. OPL will agree to permit conditions specifying the installation of the proposed controls on all storage tanks at the Kittitas facility, as well as the associated maintenance and recordkeeping requirements that are specified in 40 CFR 60 Subpart Kb.

The proposed Kittitas facility will include a loading rack capable of simultaneous loading of two tanker trucks with a design fuel transfer rate of 1,440,000 gallons per day. The proposed design of the truck rack includes a provision for the use of vapor recovery with a high efficiency carbon adsorption system to reduce emissions of VOC to the atmosphere by at least 99.9%. This level of control more than satisfies the requirement to limit emissions to no more than 10 mg per liter of gasoline loaded, which is stipulated by the new MACT (NESHAP) standard for this source category (40 CFR 63 Subpart R). The calculated emission rate of the facility in these units is 1 mg/liter of liquid loaded despite the fact that, as a non-major source of hazardous pollutants as defined in 40 CFR 63 Subpart A, the Kittitas facility is not required by federal regulations to meet the 10 mg/liter limit. However, the facility is subject to the VOC control New Source Performance Standards of 40 CFR 60 Subpart XX.

Vapor recovery and carbon adsorption with a 99.9% level of VOC control is considered to be the Atop@ level of emission control available for this equipment. No truck loading facility included in the EPA BACT/LAER Clearinghouse data base was required to install a more stringent level of control. In fact the MACT standard, which the proposed control equipment will easily surpass, was selected by EPA expressly on the basis of representing the top 10% of control efficiencies for similar equipment nationwide. Since top-BACT is proposed, a full top-down evaluation of alternate systems is not required. OPL will commit to the use of the proposed carbon adsorption system, and will accept permit conditions specifying this level of control, including the associated maintenance and recordkeeping requirements, as specified in 40 CFR 60 Subpart XX.

Fugitive emissions of VOC will result from leaking valves, flanges, compressor seals and other components throughout the proposed Kittitas facility. The only feasible control option for this source is an inspection and maintenance program to identify and repair leaking components by on a routine basis. OPL will agree to permit conditions requiring implementation of the monitoring, recordkeeping and reporting procedures listed in 40 CFR 61 Subpart V. This NESHAP requires that pump seals be inspected weekly and monitored if, upon visual inspection, a leak is detected. Maintenance and repair must be performed within 15 calendar days. Valves must also be monitored monthly and repaired within 15 days if a leak is detected. A leak is defined as 10,000 ppm above background. If a leak is detected by visual or olfactory means at a connector or flange then the device must be monitored within 5 calendar days and repaired within 15 calendar days. OPL will submit an I&M plan including compliance methods stating that weekly and monthly visual observation will be utilized at the Kittitas Terminal. This type of program is considered the top level of control feasible for fugitive VOC emissions at the Kittitas facility, and is consistent with the most stringent previous BACT findings for similar facilities. Accordingly, a detailed top-down control technology evaluation of alternate controls for fugitive VOC emissions is not required.

Application of dust control methods will be used to reduce fugitive dust emissions by at least 50%. Dust control measures to be employed during construction include watering the right of way to maintain sufficient moisture content without causing erosion problems, and applying gravel to access roads where road surface requires improvement. Speed limits along the right of way will also be limited in order to reduce fugitive emissions. Speed will be limited to 10 mph, and only essential equipment and vehicles will have access to traveling the right of way. Due to the short time period construction occurs at any one point along the right of way construction mitigation methods are severely limited. Dust suppression methods typically utilized at longer-term construction areas cannot be applied for this project considering the cost-effectiveness, and purpose of the available methods (chemical stabilization, paving, wind screens, etc). A detailed discussion of the fugitive emissions due to construction is included in Section 3.2.

2.11.3 TOXIC POLLUTANTS

Toxic pollutants are regulated by Ecology under WAC 173-460. Any new source of listed toxic emissions must demonstrate T-BACT is utilized as an emission control. New sources must also show compliance with Ambient Significant Impact Levels (ASILs) for Class A and Class B toxics. Compliance with ASILs for a toxic pollutant can be demonstrated by using either of two methods: 1) meet Small Quantity Emission Rates (SQER) for each toxic pollutant emitted; or 2) use air dispersion modeling to demonstrate that concentrations of toxic air pollutants do not exceed the ASIL for that pollutant.

Emission estimates of toxic pollutants were calculated utilizing a speciation method. This method requires the use of published speciation profiles for the fuels stored at the bulk terminal facility. The California Air Resources Board (CARB) publishes VOC species profiles for each of the fuels at the facility (CARB, 1991). The speciation profiles for each fuel and type of loss characterized (storage losses, tank losses, fugitive emissions) are included in Appendix D. Total VOCs were multiplied by the corresponding speciation factor to produce toxic pollutant emission estimates for the corresponding Class A and Class B toxic.

Benzene is the only toxic pollutant which does not meet SQER requirements. All other toxics demonstrate compliance with SQERs. Modeling of benzene emissions from the Kittitas Terminal demonstrated compliance with the ASILs and therefore the facility complies with WAC 173-460.

Control technologies used to control emissions of VOCs are generally the same type of technology used to control toxic air pollutant emissions. Best Available Control Technologies have been determined and will be employed on the storage tanks and for the truck loading operations for VOC emissions. The application of BACT for VOC emissions will also serve as T-BACT for the Kittitas Terminal.

TABLE OF CONTENTS

Page